DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/Ala Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-010148
Date Inspected: 02-Nov-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower and OBG Components

Summary of Items Observed:

On this date Caltrans OSM Quality Assurance Inspector George Goulet was present during the times noted above for observations relative to the work being performed.

Bay 10
This QA Inspector randomly observed the following work in progress in Bay 10:

FCAW welding of weld joint SSD1-A683A/B-7 located on PCMK south tower, lift 1, skirt plate to beam. Welder was identified as 057266. ZPMC QC was identified as Li Ming (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC Sun Tian Liang, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-2132. Also present at this location and appearing to be monitoring the welding operations was ABF Representative Xie Yan.

FCAW welding of weld joint SSD1-A683A/B-8 located on PCMK south tower, lift 1, skirt plate to beam. Welder was identified as 057244. ZPMC QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC Sun Tian Liang, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-2132. Also present at this location and appearing to be monitoring the welding operations was ABF Representative Xie Yan.

SMAW tack welding of unnumbered weld joints located on PCMK south tower, the two sides of stiffener to splice plate marked as SPSA-24. Welders were identified as 040586, 054547. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-P-2212-TC-U5. Also present at this location

and appearing to be monitoring the welding operation was ABF Representative Zhang Qin Jian.

SMAW welding of weld joints ED1-SA3-18-109M-5-1A, ED1-SA3-18-109M-6-1A located on PCMK east tower, lift 3, strut. Welder was identified as 050289. ZPMC QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC Li Peng Fei, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-3211-TC-U5b-1. Also present at this location and appearing to be monitoring the welding operation was ABF Representative Xie Yan.

SMAW welding of weld joints ED1-SA3-18-109M-7-1A, ED1-SA3-18-109M-8-1A located on PCMK east tower, lift 3, strut. Welder was identified as 040333. ZPMC QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC Li Peng Fei, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-3211-TC-U5b-1. Also present at this location and appearing to be monitoring the welding operation was ABF Representative Xie Yan.

FCAW welding of weld joint NSTL4-3B/L-3B located inside PCMK north tower, lift 4, skin A to skin E at 119M double diaphragm. Welder was identified as 040343. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-T-2232-TC-U4b-F.

FCAW welding of weld joint NSTL4-3B/L-5B located inside PCMK north tower, lift 4, skin B to skin C at 119M double diaphragm. Welder was identified as 050041. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-T-2232-TC-U4b-F.

SMAW welding of weld joint NSTL4-3B/L-2B located inside PCMK north tower, lift 4, skin D to skin E at 123M double diaphragm. Welder was identified as 040581. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-P-2214-TC-U4b.

FCAW welding of weld joint NSTL4-3B/L-4B located inside PCMK north tower, lift 4, skin A to skin B. Welder was identified as 052075. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-T-2231-TC-U4b-F.

Bay 11
This QA Inspector randomly observed the following work in progress in Bay 11:

FCAW welding of weld joint ESTL4-2F/L-28 located inside PCMK east tower, lift 4, skin A, fit lug to the bottom of 127M double diaphragm. Welder was identified as 053846. ZPMC QC was identified as CWI Liu Xiao Zhong (QC2). The welding variables recorded by QC2 appeared to comply with WPS-B-T-4333-TC-P4-F.

FCAW welding of weld joint ESTL4-2C/L-112 located inside PCMK east tower, lift 4, skin A, stiffener to 127M double diaphragm. Welder was identified as 040736. ZPMC QC was identified as QC2. The welding variables recorded by QC2 appeared to comply with WPS-B-T-4333-TC-P4-F.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3009 for deck panels DP3009-001 and

DP3040-001 at Gantry #2. Prior to the start of the PMT, this QA Inspector observed the root opening to be within the 0.0 to 0.5mm tolerance. The magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Ding A Cheng on 10/25/09. The visual inspection of tack welds and root gap was performed by ABF Representative Cao Hai Zhou (ABF), ZPMC CWI Sun Bo (QC), and this QA Inspector. The tack welds and root gap appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 14mm thick and the deck plates of the production panels DP3009-001 and DP3040-001 were also 14mm thick. The start time for welding of the 3–12mm x 20mm specimens was approximately 0024 hours on 11/3/09 and the finish time was approximately 0053 hours. This QA Inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by QC appeared to comply with WPS-B-T-2342-U1-(U-rib)-4. The welds were visually inspected by ABF, QC and this QA Inspector. QC and ABF informed this QA Inspector that all six welds were acceptable and this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Ma Jilong, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA Inspector selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch location was stamped by ZPMC personnel with the number 3009, the letter M, chosen randomly by this QA Inspector as a verification mark, and an individual macroetch identifying number for each macroetch. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetches were evaluated with a 7X optical magnifier and accepted by QC, ABF, and this QA Inspector.

All fifteen sample macros appeared to meet requirements and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 11/3/2008 for additional information.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Goulet,George	Quality Assurance Inspector
Reviewed By:	Dawson,Paul	QA Reviewer